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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/741,434	12/21/2000	Takashi Fukuda	2000_1743A	5280

7590 07/19/2004

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EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 07/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/741,434	FUKUDA ET AL.	
	Examiner	Art Unit	
	Martin J Angebranndt	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/7/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2000 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The response provided by the applicant has been read and given careful consideration.

Prosecution is reopened in response to the RCE filed by the applicant. The after final amendment has been entered and the rejections of the previous office action are withdrawn as the formation of holograms or gratings is precluded.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3 Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over **any one of** Natansohn et al. '381, Bieringer et al. '846, Eich et al. '859 **or** Savant et al. '221, in view of Kokado JP 63-117322 and Goldberg '261.

Natansohn et al. '381 teach polyesters, polystyrene, polyacrylates, polyurethanes, polyamides and polymethylmethacrylates with photochromic azobenzene moieties incorporated therein. (4/48-5/68). The recording of gratings or holograms is disclosed. (8/3-6 and 8/36-37). These are disclosed as erasable. (8/14+). The examiner holds that the MW is between 1,000 and 1,000,000 based upon the Tg and that it is likely near to 1,000,000. The heating of the polymeric compositions to above the Tg is disclosed. (2/4-45)

Bieringer et al. '846 teach various polymeric materials with azomoieties bonded thereto and recording information in them. These are disclosed as having MW of 5,000 to 2,000,000 in lines 34-37 of column 8. The exposure takes place at wavelengths which the side chain groups absorb (9/1-4)

Eich et al. '859 teach various polymeric materials with azomoieties bonded thereto and recording information in them. These are disclosed as having MW of 10,100-47,800 in the table in column 11. The heating of these to above the T_g or glass transition temperature is disclosed. (4/55-67, 7/59-66 and 8/10-42)

Savant et al. '221 teach various polymeric materials with azomoieties bonded thereto and recording information in them. These include polymers of various MW including as low as 4,000. The entry for PMMA and other acrylate polymers, specifically includes low, medium and high MW polymers. The preheating of the polymer prior to recording is disclosed. (20/57-63). The absorption of light is disclosed as causing heating of the medium (23/56-67)

Kokado JP 63-117322 teaches preheating an optical recording medium with a larger laser beam and writing information with a smaller beam. The preheating of the larger beam brings it proximate to the fusion temperature and then written upon. The writing is closer (more ideal) to the desired effect. (abstract). Note figures 1-4.

Goldberg '261 teaches optical recording, where the recording layer is preheated to near the melting point and another beam performs the recording. (3/6-43). See figures 2, 3 and 5. The use of two lasers allows two lower powered lasers to effect the same change as a more expensive laser. (1/40-68 and 3/48-5/2). The preheating beam can be the smaller of the two. (4/45-54)

It would have been obvious to modify **any one of** Natansohn et al. '381, Bieringer et al. '846, Eich et al. '859 **or** Savant et al. '221 by using two overlapping beams to record the data with preheating using one of the beams recording with the other to more accurately (ideally) record the desired data as discussed by Kokado JP 63-117322 and to allow cheaper lower powered lasers to be used as discussed by Goldberg '261. The examiner notes that the primary

references all discuss the Tg of the medium and the use of laser heating during recording, which is congruent with the heat mode recording discussed by the secondary references and would reasonably expected to realize the advantages discussed by Kokado JP 63-117322 and Goldberg '261.

4 Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over **any one of** Natansohn et al. '381, Bieringer et al. '846, Eich et al. '859 **or** Savant et al. '221, in view of Yamaguchi et al. '128 and Aoi et al. '080.

Yamaguchi et al. '128 teach with respect to figure 2, a preheating semiconductor laser and a recording semiconductor laser, where the preheating laser forms spot 22 in figure 3 and the recording laser forms smaller spot 23. (2/32-68). The preheating can compensate for temperature variations during recording to produce a more precise spot by preheating the recording medium to a uniform temperature. (1/40-2/6).

Aoi et al. '080 teach overlapping spots during recording to preheat the heat mode recording medium with respect to figures 3-4 (4/16-5/11), where neither of the lasers has sufficient power to record information alone, but the sum of the intensity is sufficient to recording information, which allows two cheaper low powered lasers to be used rather than a single high powered laser (1/58-2/36 and 4/57-43). Dye based recording is used. (3/1-4). A semiconductor laser may be used for each of the lasers (5/44-49)

It would have been obvious to modify **any one of** Natansohn et al. '381, Bieringer et al. '846, Eich et al. '859 **or** Savant et al. '221 by using two overlapping beams to record the data with preheating using one of the beams recording with the other to more accurately (ideally) record the desired data as discussed by Yamaguchi et al. '128 and to allow cheaper lower

powered lasers to be used as discussed by Aoi et al. '080. The examiner notes that the primary references all discuss the Tg of the medium and the use of laser heating during recording, which is congruent with the heat mode recording discussed by the secondary references and would reasonably expected to realize the advantages discussed by Yamaguchi et al. '128 and Aoi et al. '080.

5 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamada et al. '667 teach overlapping spots during recording to preheat the phase change medium with respect to figures 1, 5a and 5b.

Naya '062 teaches near field recording using two overlapping laser beams which provides recording light and assistive heating of the recording layer.(2/65-12 and embodiment of figure 3)

Yamanaka JP 59-127242 teaches overlapping laser beams, where one preheats the recording layer. (figures 1 and 2)

6 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

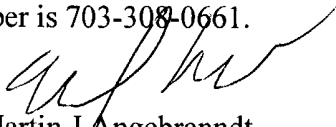
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9309 for regular communications and 703-872-9309 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Martin J. Angebranndt
Primary Examiner
Art Unit 1756

July 12, 2004